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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,110	10/26/2001	Alexander I. Krymski	08305-109001	1728

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EXAMINER

VIEAUX, GARY

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/053,110

Applicant(s)

KRYMSKI, ALEXANDER I.

Examiner

Gary C. Vieaux

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12 and 15 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 is/are allowed.
- 6) ☒ Claim(s) 8-10 and 19-22 is/are rejected.
- 7) ☒ Claim(s) 13, 14 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

The Amendment filed March 9, 2005 has been received and made of record. In response to the first Office Action, claims 11, 12, and 15 have been cancelled, claims 1, 4, 6, 8, 9, and 13 have been amended, and claims 16-23 have been added.

In response to Applicant's cancellation of claims 11, 12, and 15, the objections to the claims are now rendered moot, and therefore, the objections are withdrawn.

In response to Applicant's amendment of claim 6, the issue of antecedent basis has been corrected, and therefore, the objections to claims 6 and 7 are withdrawn.

Claim Objections

Claims 8 and 19 are objected to because of the following informalities:

Regarding claim 8, "photodetector" is misspelled as "photodector" when used in reference to both the first and second switch;

Regarding claim 19, "photodetector" is misspelled as "photodector" when used in reference to the memory, the first switch, and the second switch;

Appropriate correction is required.

Response to Arguments

Regarding claims 1-7, Applicant's arguments, see pages 6 and 7 of the Remarks, filed March 9, 2005, have been fully considered and are persuasive. The rejections of claims 1-7 have been withdrawn.

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Regarding claims 8-14, Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 20 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 20, after review of the specification, subject matter was not found which would fully support the limitation of "the first and second collection time periods are identical for each of the plurality of pixels" (Response p. 5.) Subject matter, as applied to collection time periods, was limited to short and long exposure periods.

Regarding claim 21, this claim depends directly from claim 20, and therefore contains and includes all limitations associated therewith.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-10, 16-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dierickx et al. (EP 0858212 A1) in view of Miyatake et al. (US 5,241,575.)

Regarding claims 8 and 19, Dierickx teaches a photodetector (fig. 2a indicator 23) having a memory (col. 3 lines 14-16), an analog memory (fig. 2a indicator C) and a plurality of switches including a first switch constructed to connect the photodetector to a reset voltage source (fig. 2a indicator 22), a second switch constructed to connect the photodetector to the analog memory for permitting transfer of a first and a second image signal collected in the photodetector during a respective first and second collection time period (fig. 2a indicator 21 and fig. 5, col. 7 lines 1-6.) However, Dierickx does not provide a teaching for a third switch for connecting the analog memory to a reset voltage source, wherein the third switch is different than either the first or the second switch.

Nevertheless, Miyatake discloses a pixel that employs a switch to reset a capacitor (fig. 3A, col. 6 lines 9-12.) It would have been obvious to combine the additional switch as taught by Miyatake with the pixel of Dierickx as a way to reset the analog memory and allow each switch to be dedicated to only one control function.

Regarding claim 9, Dierickx and Miyatake teach all the limitations of claim 9 (see the 103(a) rejection to claim 8 supra) including wherein the second time period is longer than the first time period ('212 - fig. 5.)

Regarding claim 10, Dierickx and Miyatake teach all the limitations of claim 10 (see the 103(a) rejection to claim 9 supra) including wherein the second time period includes the first time period ('212 - fig. 5.)

Regarding claim 16, Dierickx teaches a method comprising resetting a photodetector of the image sensor by activating a second switch (fig. 5 and fig. 2a indicator 22), integrating charge at the photodetector during a first integration period to generate a first image signal (fig. 5 and fig. 2a indicator 23), transferring the first image signal from the photodetector to the memory by activating a third switch (fig. 2a indicator 21, col. 7 lines 1-6), interpolating charge at the photodetector during a second integration period to generate a second image signal (fig. 5 and fig. 2a indicator 23), and transferring the second image signal from the photodetector to the memory by activating the third switch (fig. 2a indicator 21, col. 7 lines 6-19). However, Dierickx does not provide a teaching for resetting an analog memory of the image sensor by activating a first switch.

Nevertheless, Miyatake discloses a pixel that employs a switch to reset a capacitor (fig. 3A, col. 6 lines 9-12.) It would have been obvious to combine the additional switch as taught by Miyatake with the method of Dierickx as a way to reset the analog memory and allow each switch to be dedicated to only one control function.

Regarding claim 17, Dierickx and Miyatake teach all the limitations of claim 17 (see the 103(a) rejection to claim 16 supra) further comprising creating a total image signal by combining the first and the second image signals ('212 - col. 3 lines 9-10.)

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dierickx et al. (EP 0858212 A1) in view of Miyatake et al. (US 5,241,575), in further view of Fossum et al. (US 5,471,515.)

Regarding claim 18, Dierickx and Miyatake teach all the limitations of claim 18 (see the 103(a) rejection to claim 16 supra), except for explicitly teaching the method further comprising reading out the total image signal through a readout circuit.

Regardless, Fossum teaches employment of readout circuitry in order to remove a signal from a pixel (fig. 1 indicator 16, col. 3 lines 3-6.) It would have been obvious to one of ordinary skill in the art at the time of the invention to employ readout circuitry to remove the signal of the method of Dierickx and Miyatake, so that the signal may be employed for processing and image production.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dierickx et al. (EP 0858212 A1) in view of Miyatake et al. (US 5,241,575), in further view of Gowda et al. (US 6,344,877.)

Regarding claim 22, Dierickx and Miyatake teach all the limitations of claim 22 (see the 103(a) rejection to claim 19 supra), except for explicitly teaching wherein the array further comprising a column readout circuit constructed to read out a total image signal from each of the plurality of pixels, one row at a time. However, Dierickx is found to teach the plurality of pixels are arranged in rows and columns in said array (col. 1 lines 19-22.)

Nevertheless, Gowda discloses readout circuitry for reading out a total image signal from each of the plurality of pixels, one row at a time (fig. 2 indicator 14, col. 4 lines 27-28.) It would have been obvious to one of ordinary skill in the art at the time of the invention to include the readout circuitry as taught by Gowda, with the cells of Dierickx and Miyatake, so that the image signals can be extracted systematically for later processing and image production.

Allowable Subject Matter

Claims 1-7 are allowed.

Regarding claims 1-7, the prior art is not found to teach or fairly suggest, combination of the short image signal and the long image signal in an analog memory in the sensor to create a total image signal.

Claims 13, 14 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 13, the prior art is not found to teach or fairly suggest, in combination with the claim 8 from which dependence is derived, wherein the analog memory within an individual pixel combines the first image signal and the second image signal to create a total image signal.

Regarding claim 14, the prior art is not found to teach or fairly suggest the elements of claim 13, in combination with the claim 8 from which dependence is

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derived. The Examiner does note that pixel readout sections are however well known and expected in the art.

Regarding claim 23, the prior art is not found to teach or fairly suggest, in combination with the claim 19 from which dependence is derived, wherein the analog memory is constructed such that it can create a total image signal based on the first and second image signals.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact

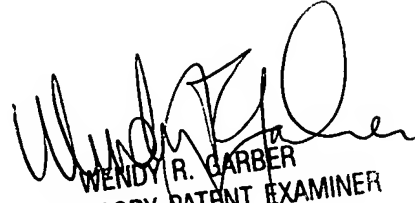
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary C. Vieaux whose telephone number is 571-272-7318. The examiner can normally be reached on Monday - Friday, 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 571-272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 until September 15, 2005; beginning July 15, 2005, the new fax phone number for the organization where this application or proceeding is assigned will become 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary C. Vieaux
Examiner
Art Unit 2612

Gcv2


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